Tetsuo KOYAMA*: Taxonomic study of Carex in the Eastern Asia. (1)

小 山 鐵 夫*: 東亜産スゲ属の分類学的研究 (1)

1. Carex filipes and its allies.

Carex filipes Franchet et Savatier Enum. Plant. Japon. **2**: 148 (1877) et 576. (1879); Franchet in Nouv. Archiv. du Muséum 3e sér. **10**: 68, t. 7, f. 2 (1898); Matsumura, Index Plant. Japon. **2**-1: 109. (1905), ex p.; Kükenthal Cyper.-Caric. 639 (1909); Akiyama in Journ. Fac. Sci. Hokkaido Imp. Univ. ser. 5, **2**: 213, f. 156, 1-7 (1932); Ohwi in Mem. Coll. Sci. Kyoto Imp. Univ. ser. B, **11**, 5, art. 9: 423 (1936).

subsp. **filipes**

var. **filipes**

Nom. Jap. Tamatsuri-suge. Distrib. in Japonica, Hondo et Shikoku.

var. **tremula** (Ohwi) Ohwi l. c. 423 (1936) (ut *C. filipes* var. *tremula*)

C. arisanensis var. *tremula* Ohwi l. c. **5**: 255 (1930)—*C. tremula* (Ohwi) Ohwi in Act. Phytotax. et Geobot. **2**: 28 (1933)—'*C. filipes* Fr. et Sav.' Lévl. et Vnt. in Bull. Acad. Intern. Géogr. Bot. **11**: 112 (1902).

Nom. Jap. Hime-juzusuge. Distrib. in Japonia, Shikoku et Kiushiu.

subsp. **arisanensis** (Hayata) T. Koyama, stat. et comb. nov.

Acknowledgements—First, I would like to express my cordial gratitude to Dr. J. Ohwi of the National Science Museum; through his constant and many-sided instructions and kind advices my study progressed smoothly. As many of the collections used in this study are being preserved in the Herbarium of the National Science Museum, my hearty thanks are due to Dr. Y. Satake (Chief of Research Division of the Museum) and Mr. S. Okuyama who afforded me various facilities to examine the specimens in the herbaria. I am also greaty indebted to Dr. M. Honda, Dr. F. Maekawa and Dr. Y. Kimura (Botanical Institute, University of Tokyo), to Dr. S. Kitamura, Dr. M. Tagawa and Mr. M. Hiroe (Botanical Institute, University of Kyoto), through their kind offices I was able to examine the literatures on *Carex* and the specimens preserved there. A particular debt is owed to Dr. E. Nelmes (Kew Gardens, Great Britain) and Dr. J. A. Calder (Canada, Dept. of Agriculture) who offered me a lot of valable foreign materials. In the end, I must express my sincere appreciation to Mr. K. Inami and some other collectors who co-operated with me in the field work.

* [redacted], Urawa-City, Japan. 浦和市[redacted].

C. arisanensis Hayata, Mater. Flor. Formos. 378 (1911) et Ic. Pl. Formos. **6**: 130, t. 18 (1916); Ohwi in Jap. Journ. Bot. **7**: 189 (1934) et l. c. **9**: 424 (1936)

Nom. Jap. Arisan.-tamatsurisuge. Distrib. in Formosa.

subsp. **Rouyana** (Franchet) T. Koyama, stat. et comb. nov.

C. Rouyana Franchet in Bull. Soc. Philom. de Paris 8e sér., **7**: 51 (1895) et in l. c. 67, t, 7, f. 1 (1898)—*C. filipes* var. *Rouyana* (Franchet) Kükenthal, l. c. 640 (1909); Akiyama l. c. 213, f. 156, 8-10 (1932); Ohwi l. c. 423 (1936) —'*C. filipes* Fr. et Sav.' Matsum. l. c. 109 (1905), p. p.

var. **Rouyana**—Nom. Jap. Oh-tamatsurisuge. Distrib. in Japonia, Hondo.

var. **Arakiana** (Ohwi) Ohwi in l. c. 424 (1936) (ut *C. filipes* v. *Arakiana*)

C. Rouyana var. *Arakiana* Ohwi in Act. Phytotax. et Geobot. **1**: 299 (1932).

Nom. Jap. Hirohano-ohtamatsurisuge. Distrib. in Japonia, Hondo (San-in).

var. **oligostachys** (Meinsh. ex Maxim.) Kükenthal l. c. 641 (1909), ex p. et in Fedtsch. Prim. Flor. Sibir. **2**: 170 (1912); Nakai, Flor. Kor. **2**: 330 (1911); Ohwi l. c. 424 (1936) (omnia ut *C. filipes* var. *oligostachys*)

C. oligostachys Meinsh. ex Maxim. in Bull. Acad. St. Pétersb. **31**: 117 (1887) et in Acta Horti Petrop. **18**: 363 (1901); Franch. l. c. 68 (1898); Komarov, Flor. Mansh. **1**: 377 (1901); Kitagawa in Bot. Mag. Tokyo **48**: 26 (1934)—*C. egena* Lévl. et Vnt. in Fedde, Repert. **4**: 227 (1907).

Nom. Jap. Hane-suge, Manshû-tsurisuge. Distrib. in Corea, Manshuria et Ussuri.

var. **sparsinux** (C. B. Clarke ex Franch.) Kükenthal, l. c. 639 (1909) (ut *C. filipes* var. *sparsinux*).

C. sparsinux C. B. Clarke ex Franchet in Nouv. Archiv. du Muséum 3e sér. **10**: 66 (1898)—A var. *Rouyana* spiculis masculis angustioribus, foliis etiam paullo angustioribus 3-5 (-6) mm latis distinguenda.

Nom. Jap. Shina-tsurisuge (nov.). Distrib. in China media. Specim. exam.: Mt. Hsi-tienmu-shan, Prov. Chekiang. (leg. H. Migo, 14 maio, 1935—NSM.* n. 87837).

This small group of sedges of which the members very much resemble one another, distributes in the Far East. Hitherto the difference between *C. filipes* and *C. Rouyana* has been based on the size of staminate spikelet, the colour of the leaf sheaths of the basal part of the plant and the width of leaves, namely the latter has a large many-flowered staminate spikelet and brown sheaths. Since 1950, I examined a great many living and dried speci-

* NSM.=Herb. National Science Museum, Ueno Park, Tokyo.

mens of *C. filipes* and its allies. As the result, I discovered that *C. Rouyana* is distinguished from *C. filipes* by its long-peduncled staminate spikelet too. While the staminate spikelet of *C. filipes* is usually sessile or short-peduncled and not exceeding the highest bract or the highest pistillate spikelet, that of *C. Rouyana* is long-peduncled and far exceeding the highest pistillate spikelet and bract. Although these two sedges often grow in the same spot, usually we can hardly find the intermediate form between them.

By this character we can devide this group of sedges into two main classes. I ranked these two groups by subspecific status. One is represented by ssp. *filipes* which has usually sessile staminate spikelet and

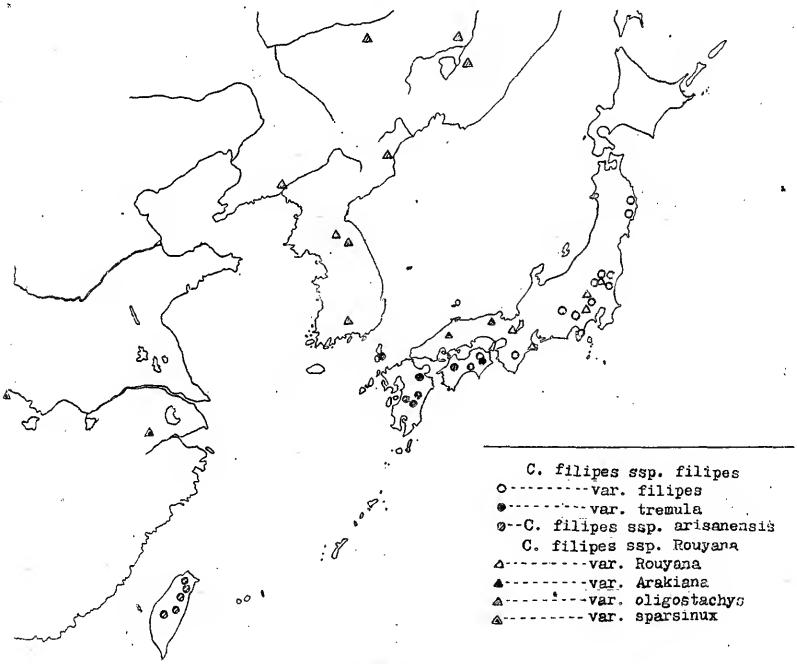

Fig. 1.

the other is represented by ssp. *Rouyana* which has long-peduncled staminate spikelet. Moreover, this division well agrees with the geographical distribution (Fig. 1.): the former group (marked with circles) distributes from eastern Japan southwestward to Formosa, whereas the latter (marked with triangles) distributes around the Japan sea from Japan to Ussuri.

The spikelets of *C. arisanensis* are similar to those of *C. filipes*, however, it has comparatively rigid leaves up to 6 mm wide and attenuated both at the apex and the base. The leaves of *C. filipes* are laccid, abruptly attenuated at the apex and scarcely narrowed at the base. So, I placed *C. arisanensis* as a subspecies of *C. filipes*.

2. **Note on the Section Scleriiculmes.**

The Section Scleriiculmes was separated from the Section Hirtae by Dr. Nelmes in 1951. Then he had taken three species, i. e. *C. Maubertiana*, *C. hebecarpa* and *C. ligulata* and he indicated the arrangement of leaves on the culm as the chief character of the above three species. According to him, in this section, leaves are fully developed and rather numerous in the upper part of the culm, merging into the leafy bracts, towards the base of the culm, where they merge into blade-less sheaths.

Dr. Ohwi and I thought that *C. poculisquama* and the group of *C. ligulata* have some common natural characters different from the others. The vegetative organs of *C. poculisquama* which was considered to belong to the Section Digitatae are rather closely related to *C. ligulata*: it has no radical leaves and the arrangement of the leaves on the culm is similar to those of the sedges of Dr. Nelmes' section.

The classification of this section is as follows.

Sect. **Scleriiculmes** Nelmes in Kew Bull. **1951**: 121 (1951) et in Reinwardtia **1**, pt. 3: 407 (1951).

A) Ser. **Poculisquamae** T. Koyama, ser. nov.—Culmis mediocribus minus quam 50 cm altis, spiculis 3-4 tenuiter cylindricis praeter imam fastigiatis, squamis masculis et femineis poculiformibus, utriculis rhomboideis tenuiter paucinervosis parce puberulis, stylo nasi incrassato pyramidato persistente, stigmatibus 3 brevibus subcrassis excurvis. Species typica: *C. poculisquama* Kükenthal (Species unica).

B) Ser. **Hebecarpae** T. Koyama, ser. nov.—Culmis 50-80 cm altis validis aureoviridibus, spiculis 5-9, terminali mascula subclavata, reliquis femineis cylindricis densifloris, squamis omnibus non connatis, utriculis dense albotomentosis saltem supra medium subenervis ovato-ellipsoideis, stylo basi subincrassato sed non pyramidato. Species typica: *C. hebecarpa* Nees.

3. **Note on Carex Tetsuoi.**

Carex (Anomalae) **Tetsuoi** Ohwi ex Ohwi et T. Koyama in Misc. Rep.

National Sci. Mus. **5**: 2, t. 2 (1952)—Abs *C. maculata* squamis paullo majoribus tenuioribus, utriculis textu tenuioribus pallide luteovirentibus paucius et minutius papillosis apice sensim rostratis distinguenda.

Nom. Jap. Ryukyu-tachisuge. Hab. m. Ahayama in ins. Okinawa. (leg. T. Amano, 4 maio, 1951, in Hb. NSM.—Typus.)

4. **Carex brunnea and Carex sendaica.**

Carex brunnea Thunberg, Flor. Japon. 38 (1784); Schkuhr, Riedgr. **2**: 16, t. X x, fig. 111 (1806); Kunth, Enum. Plant. **2**: 392 (1837); Franchet in Nouv. Archiv. du Muséum 3e ser. **8**: 241 (1896), ex p.; Lévl. et Vnt. in Bull. Acad. Intern. Géogr. Bot. **12**: 504 (1903), p. p.; C. B. Clarke in Journ. Linn. Soc. **36**: 278 (1903), saltem p. p.; Matsumura, Index Plant. Japon. **2**-1: 103 (1905), p. p.; Matsum. et Hayata, Enum. Plant. Formos. 493 (1906); Kükenthal, Cyper.-Caric. 599 (1909), ex p,. excl. fig. 102, A—E; Akiyama in Journ. Fac. Sci. Hokk. Imp. Univ. ser. 5, **2**: 182 (1932), ex p.; Ohwi in Mem. Coll. Sci. Kyoto Imp. Univ. ser. B, **11**, 5: 466 (1936).

var. **brunnea**

C. Gentiliana var. *oshimensis* Kükenth. apud Matsum. l. c. 111 (1905)—*C. gentilis* var. *oshimensis* Kükenth. l. c. 603 (1909)—*C. amami-oshimensis* Akiyama, l. c. 186 (1932); Ohwi in Jap. Journ. Bot. **7**: 188 (1934).

Folia subflavoviridia vel laete viridia rigidula. Spiculae plures dispositae saepe 2-3-nae ramosae anguste vel vere cylindricae 1-3 cm longae 2-3 mm latae. Utriculi elliptici 2.5-2.7 mm longe.

Nom. Jap. Kogome-nakirisuge. Distrib. Japonica: Hondo, Shikoku, Kiushiu, Riukiu, Formosa.

var. **abscondita** T. Koyama, var. nov.—A type differt omnibus partibus angustioribus, rhizomate crassioribus repentibus, culmis scaberrimis humilibus tenuibus foliis brevioribus absconditis, spiculis simplicibus, utriculis ellipticis 2.5-2.7 mm. longis margine et nervo superne setuloso-scabris apice in rostrum breve.

Nom. Jap. Shiokaze-nakiri (K. Inami, nov.).—Hab. in locis saxosis littoris, Toyohama-mura in Prov. Owari, Hondo (leg. K. Inami—Typus in NSM.)

Carex sendaica Franchet in Bull. Soc. Philom. de Paris 8e sér., **7**: 42 (1895) et l. c. 8 t. 10, f. 2 (1896) et **9**: 137 (1897); Matsum. l. c. 132 (1905); Akiyama l. c. 183 (1932); Ohwi l. c. 467 (1936).

C. longistolon C. B. Clarke ap. Franch. l. c. 8: 243 (1896); C. B. Clarke in

Journ. Linn. Soc. **36**: 296 (1903)—*C. brunnea* var. *sendaica* (Franch.) Kükenth. l.c. 601 (1909)—? *C. hongnoensis* Lévl. in Fedde, Rep. **8**: 426 (1910)—*C. Husnotiana* Lévl. l.c. 8: 444 (1910)—*C. Nakiri* Ohwi in Acta Phytot. Geob. **5**: 64 (1936) (und.)

Abs *C. brunnea* diversissima utriculis latioribus paullo grandioribus, spiculis paucioribus crassioribus minus ramosis.

var. **sendaica**

Laxe caespitosa longe stolonifera. Spiculae 3-4 (-5) oblongae approximatae singulae simplices, laterales raro mere femineae. Bractea ima setacea.

Nom. Jap. Sendai-suge. Distrib. Japonica: Hondo, Shikoku, Kiushiu. Corea: ins Quelpaert.

var. **pseudo-sendaica** T. Koyama, var. nov.—*C. brunnea* var. *pseudo-sendaica* T. Koyama, in sched.—A var. *Nakiri* planta laxe caespitosa longe stolonifera spiculis paucioribus simplicibus diversa et a var. *sendaica* differt spiculis (3-) 5-8 saltem inferioribus remotis cylindricis angustioribus.

Nom. Jap. Sendai-suge-modoki (K. Inami, nov.) Hab. in monte Sanageyama in Prov. Mikawa, Hondo (leg. K. Inami, in NSM.: Typus); Corea, ins.

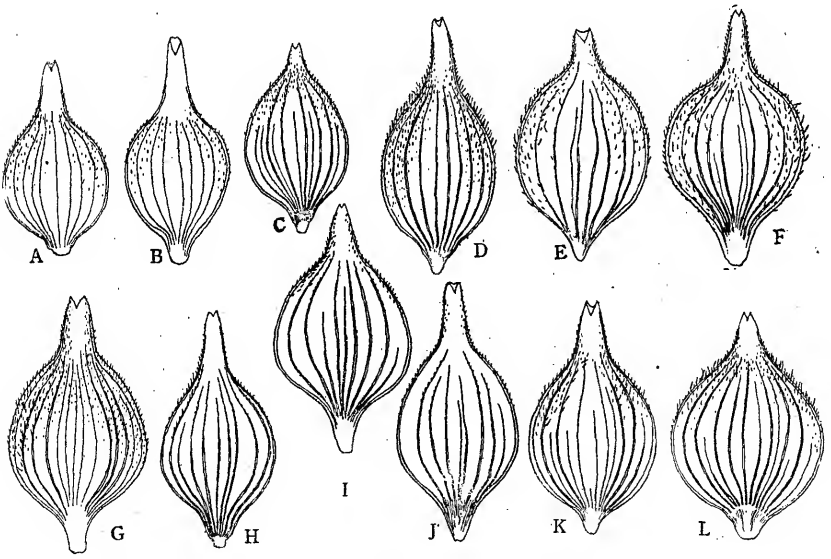

Fig. 2. Utricles of the varieties of *Carex brunnea* & *Carex sendaica*
A—B. *C. brunnea* v. *brunnea*; C. *C. brunnea* v. *abscondita*; D—F. *C. sendaica* v. *Nakiri*; G—H. *C. sendaica* v. *pseudo-sendaica*; I—L. *C. sendaica* v. *sendaica* (I=? *C. Husnotiana*) A—L=×15 (Ic. orig.)

Quelp. (leg. E. Taquet, n. 6082, in Herb. Univ. Tokyo).

var. **Nakiri** (Ohwi) T. Koyama, comb. nov.

'*C. brunnea* Thunb.' Franch. l. c. 241 (1896) ex p.; Lévl. et Vnt. l. c. 504 (1903), ex p.; C. B. Clarke, l. c. 278 (1903), ex p.; Matsum. l. c. 103 (1905), p. p.; Kükenth. l. c. 599 (1909) pro maxima parte, incl. fig. 102, A—E; Nakai, Flor. Kor. **2**: 324 (1911); Akiyama, l. c. 182 (1932), p. p.—*C. brunnea* var. *Nakiri* Ohwi, l. c. 467 (1936)—? *C. gracilis* R. Br. Prodr. Flor. Nov. Holl. 242 (1810); Kunth, l. c. 513 (1837); Boott, Illustr. Carex **1**: 59, t. 154-155 (1858), incl. *β. minor*.—*C. Nakiri* Ohwi in Act. Phytotax. et Geobot. **5**: 64 (1936) non. nud.

Folia perrigida atroviridia. Spiculae minus ramosae crassiores oblongo-cylindricae usque oblongae (5-) 10-20 mm longae 3.5-4 mm in diam. Utriculi late elliptici 3-3.5 mm longi.

Nom. Jap. Nakiri-suge. Distrib. Japonia: Hondo, Shikoku, Kiushiu. Corea australis.

forma **simplex** (Kükenth.) T. Koyama, comb. nov.

C. brunnea forma *simplex* Kükenth. in Englers Bot. Jahrb. **36**, beibl. n. 82:8(1905) et l. c. 601 (1909)—Spiculae simplices paucae. Distrib. Japonia.

C. brunnea is apparently distinguishable from *C. sendaica* in having smaller utricles, narrower spikelets, yellowish green and more or less flaccid leaves, etc.

Many authors had distinguished *C. sendaica* from *C. brunnea* var. *Nakiri* by its long stolons and a small number of spikelets. But, from my study made on Japanese specimens, I found that the rhizome of *C. brunnea* var. *Nakiri* often creeps shortly and some (var. *pseudo-sendaica*) have long stolons and Nakiri-like panicle. So, it is rather difficult to treat *C. Nakiri* to a specific status. Taquet's specimen* that seems to face within the category of *C. Husnotiana* is nothing else than *C. sendaica*. (To be continued)

---

1. タマツリスゲとオホタマツリスゲは全体の大きさと地上部基部の鞘の色により区別されて居たが，雄小穂の支柄の長短及び穂体の大きさによつても区別出来る（前者が支柄短かく後者は長い）。此の 2 種は往々同一箇所に生じて居るが明らかに区別出来る。しかし他の種と形態的に重要と認められる差，即ちこの場合果胞及び痩果の差が余り顕著でないから全く別種と考えるのは適当でない。雄小穂の形態的差と近畿以西の分布圏の差に依りタマツリスゲの一群は 2 組に大別される（第 1 図）。アリサンタマツリ

* Taquet No. 4951 (noted as *C. Husnotii*) in Herb. Univ. Tokyo.

スゲはヒメジユズスゲを中間としてタマツリスゲに続くものであるが，葉にかなりの差の有る事，分布がヒメジユズスゲと稍々離れて居る事から亜種と考えた。又，*C. sparsinux* に就いては Franchet の記載 (Les Carex de l'Asie Orientale 中の) によく一致する支那産の標本 (御江博士採品) が科学博物館に1枚あり，之が日本の唯一の標本でもある。

2. 1951年に Nelmes 博士が発表した新節 Sect. Scleriiculmes (サツマスゲ節——新称) にアカネスゲが編入されるべき事を述べた。

3. 昨年科学博物館集報に発表した新種リウキウタチスゲを再録した。

4. 従来同一種内に置かれて居たコゴメスゲとナキリスゲは果胞の形態と栄養体の形態との双方から区別する事が出来，別種として扱われて居たセンダイスゲが，其の区別点である小穂の数と苞枝の形態にナキリスゲとの中間を生じて区別がむずかしくなり，むしろナキリスゲの変種と考えた方が自然である。しかし命名規約上はナキリスゲがセンダイスゲの変種の形になる。ナキリスゲ類の研究に供した資料の中には名古屋の井波一雄氏に負ふ所大なるものが多い。

○ヤマドリゼンマイとオニゼンマイ（前川文夫・金井弘夫）Fumio MAEKAWA & Hiroo KANAI: Clear demarcation in sterile fronds of two *Osmunda*.

ヤマドリゼンマイ (*O. cinnamomea* L.) とオニゼンマイ (*O. Claytoniana* L.) とはブナ帯上部から亜高山帯の濕原及び水位の高い原野や斜面に普通のしだで，屢々群落を作り且つ混生する。その種の区別は前者が裸実両葉に分れて生ずるのに後者は胞子嚢を中部の数段の羽片上にのみ着ける点にあることは知れわたつている。しかし胞子葉は常にあるとは限らないし両者の混生は適格な種の区別に悩みの種である。

一昨夏私の教室の野外実習で日光地方に数日を送つたが，この両種の裸葉における区別には悩まされた。そこで学生の金井君と実葉を伴つた株を規準にしてあれこれと区別をさがして次の二点を得日光の随処で試みてみると仲々工合がよいので，まずは適格なものとみて次に記す。

		ヤマドリゼンマイ	オニゼンマイ
(1)	最下羽片の外方最下小羽片の形	隣りの小羽片と較べて不連続的に小形となるか又は往々欠けて空隙となる。従つて羽片の輪郭は根本で急にへこむ	隣りの小羽片と殆んど同大同形，従つて羽片輪郭は出入がない
(2)	羽片の裏面の色	鮮緑色，白味を帯びない	どこか蒼白色を帯びる

(1) は確実だが，(2) は時々蒼白味のないオニゼンマイにぶつかりやや不確実。一般に云うぜんまい綿の色の栗褐色と淡紫褐色とによる区別は殆んど区別に使えない。